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(54) Title: METHODS AND COMPOSITIONS FOR INCREASING THE EFFICACY OF BIOLOGICALLY-ACTIVE INGREDIENTS

(57) Abstract: The invention provides methods and compositions for modulating the sensitivity of cells to cytotoxic compounds and other active agents. In accordance with the invention, compositions are provided comprising combinations of ectophosphatase inhibitors and active agents. Active agents include antibiotics, fungicides, herbicides, insecticides, chemotherapeutic agents, and plant growth regulators. By increasing the efficacy of active agents, the invention allows use of compositions with lowered concentrations of active ingredients.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/32667

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : A01N 37/00, 37/18, 47/34, 63/00

US CL : 504/117, 149, 329; 514/553, 621

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 504/117, 149, 329; 514/553, 621

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
none

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WEST: ectophosphatase, apyrase, inhibit-, suramin

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category * | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|------------|--|-----------------------|
| X          | US 2002/0077365 A1 (WINDSOR et al). 20 June 2002 See entire document.  | 1-30                  |
| X          | US 2002/0103082 A1 (WINDSOR et al). 01 August 2002, See entire document.   | 1-30                  |
| X          | YUNBAM et al. "In vivo evaluation of reuterin and its combinations with suramin, melarsoprol, DL-alpha-difluoromethylornithine and bleomycin in mice infected with Trypanosoma brucei brucei". Comp. Biochem. Physiol. 1993. Vol 105C, No. 3, pages 521-524. | 1-30                  |
| X          | US 4,737,521 (STUNKEL et al) 12 April 1998, See entire document.   | 1-30                  |

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

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